

PUMP-USED FILTER DEVICE

BACKGROUND OF THE INVENTION

5 The present invention is related to a pump technique, and more particularly to a pump-used filter device which can enhance filtering effect and prolong the period of cleaning of the filter mesh.

10 Figs. 5 to 7 show a conventional pump-used filter device. The filter device includes a connecting member 60 capable of connecting with an output end of a pump. A liquid incoming hole 61 is formed on one side of the connecting member 60 to communicate with the pump. Two liquid outgoing holes 62 are respectively formed on top section and the other side of the connecting member 60. A hollow outer sleeve 70 is locked
15 with the connecting member 60. A cylindrical filter tube 80 is fitted in the outer sleeve 70. The liquid incoming hole 61 of the connecting member 60 communicates with the interior of the filter tube 80, while the liquid outgoing holes 62 communicate with outer side of the filter tube 80. A bottom cap 90 seals the bottom of the outer sleeve 70. A valve body 91
20 is locked in the bottom cap 90 to communicate with the interior of the filter tube 80. One end face of the filter tube 80 tightly abuts against inner face of the bottom cap 90.

25 In use, as shown in Fig. 6, high-pressure liquid paint is pumped into the liquid incoming hole 61 of the connecting member 60 to flow into the interior of the filter tube 80. The clean liquid paint is filtered through the filter tube 80 to flow to the outer circumference of the filter

tube 80. Then the liquid paint is conducted out from the liquid outgoing holes 62.

The above conventional pump-used filter device has some shortcomings. For example, as shown in Figs. 6 and 7, after filtered, the impurities 81 will precipitate and drop onto the bottom of the filter tube 80 due to gravity. However, a part of the impurities 81 will suffer the pressure of the high-pressure liquid paint to jam the meshes 82 of the filter tube 80. Moreover, the filter tube 80 is vertically arranged so that the meshes 82 are horizontally positioned. Therefore, the impurities 81 jamming the meshes 82 are uneasy to drop onto the bottom of the filter tube 80. Furthermore, the impurities 81 precipitating on the bottom of the filter tube 80 will jam the meshes 82 of the bottom of the filter tube 80. This will deteriorate the filtering effect and affect the using effect of the spray gun. Also, it is necessary to frequently clean and wash the filter tube 80. This is troublesome and will reduce working efficiency. In addition, the filter tube 80 is an elongated tube and needs to be washed by a long brush. This is inconvenient and will increase the washing time. Moreover, the cost for the filter tube 80 is relatively high.

SUMMARY OF THE INVENTION

It is therefore a primary object of the present invention to provide a pump-used filter device which can reduce the amount of the impurities jamming the filter mesh and enhance filtering effect. Also, the pump-used filter device can prolong the period of cleaning of the filter mesh and make it easier to clean the filter mesh. In addition, the cost for

the filter mesh is lower.

According to the above object, the pump-used filter device includes: a connecting body capable of communicating with a spray gun
5 pump, the connecting body being formed with an internal upper cavity, the connecting body being further formed with a guide post in the upper cavity, the connecting body being further formed with a liquid incoming passage passing through the guide post, the connecting body being further formed with a liquid outgoing passage on one side other than the
10 liquid incoming passage, one end of the liquid outgoing passage communicating with the upper cavity, the other end of the liquid outgoing passage being formed with at least one outlet; a main body having a connecting section locked with the connecting body, the main body further having a conic section immediately adjacent to the connecting
15 section, the conic section being formed with an internal lower cavity corresponding to the upper cavity of the connecting body; and a filter mesh horizontally disposed between the main body and the connecting body, the guide post being fitted through and located in the filter mesh, whereby the filter mesh separates the upper cavity of the connecting body
20 and the lower cavity of the main body from each other as two spaces.

The present invention can be best understood through the following description and accompanying drawings wherein:

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BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective exploded view of the present invention;

Fig. 2 is a sectional assembled view of the present invention;

Fig. 3 is a sectional assembled view according to Fig. 2, showing the path of the liquid paint entering the present invention;

Fig. 4 is an enlarged view showing that the impurities jam the filter
5 mesh of the present invention;

Fig. 5 is a perspective exploded view of a conventional pump-used filter device;

Fig. 6 is a sectional assembled view the conventional pump-used filter device; and

10 Fig. 7 is an enlarged view showing that the impurities jam the mesh tube of the conventional pump-used filter device.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

15 Please refer to Figs. 1 to 3. The pump-used filter device of the present invention includes a connecting body 10 capable of communicating with a spray gun pump. A circumference of the connecting body 10 is formed with an outer thread section 11. The connecting body 10 is formed with an internal upper cavity 12 directed to
20 the outer thread section 11. The connecting body 10 is formed with a guide post 13 at the center of the upper cavity 12. In addition, the connecting body 10 is formed with a liquid incoming passage 14 passing through the guide post 13. The connecting body 10 is further formed with a liquid outgoing passage 15 on one side other than the liquid incoming
25 passage 14. One end of the liquid outgoing passage 15 communicates with the upper cavity 12. The other end of the liquid outgoing passage 15 is formed with two outlets 16 respectively communicating with top side

and the other side of the connecting body 10.

The present invention further includes a main body 20 locked with the connecting body 10. The main body 20 has a connecting section 21
5 formed with an inner thread hole 22. The main body 20 further has a coupling section immediately adjacent to the connecting section 21. The coupling section is a conic section 23 formed with an internal lower cavity 24. Bottom end of the conic section 23 is formed with an opening 26. An annular shoulder section 25 is formed between the inner thread
10 hole 22 and the conic section 23.

The present invention further includes a filter mesh 30 clamped between the shoulder section 25 of the main body 20 and the end of the outer thread section 11 of the connecting body 10. The outer and inner
15 circumferences of the filter mesh 30 respectively have an outer and a central leakproof washers 310, 311. Three reinforcing ribs 32 are disposed between the two washers 310, 311 at equal angular intervals. The guide post 13 is fitted through the central washer 311. The outer washer 310 is clamped between the shoulder section 25 of the main body
20 20 and the end of the outer thread section 11 of the connecting body 10.

The present invention further includes a guide member 40 locked on the guide post 13 of the connecting body 10. The guide post 13 of the connecting body 10 and the guide member 40 clamp the filter mesh 30 on
25 two sides thereof. The guide member 40 has a chamber 41 communicating with the liquid incoming passage 14. Two guiding outlets 42 are respectively formed through two sides of the guide member 40 to

communicate with the chamber 41.

The present invention further includes a valve body 50 locked in the opening 26 of the conic section 23 of the main body 20.

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In use, referring to Figs. 3 and 4, a liquid paint is pumped into the liquid incoming passage 14 of the connecting body 10. The liquid paint then goes through the guide post 13 into the chamber 41 of the guide member 40. Then the liquid paint goes out of the guiding outlets 42 of the guide member 40 into the lower cavity 24 of the main body 20. When the liquid paint is filled into the lower cavity 24, the impurities carried by the liquid paint will precipitate onto the bottom of the conic section 23 due to gravity. When the level of the liquid paint exceeds the filter mesh 30, a part of the liquid paint is filtered through the filter mesh 30 to flow to the upper cavity 12 of the connecting body 10. The filtered liquid paint is conducted out from the liquid outgoing passage 15. When the pump stops operating, the connecting body 10 stops filling the liquid paint into the main body. When cleaned, it is only necessary to control the valve body 50 in an unblocked state. At this time, the impurities 34 precipitating on the bottom of the conic section 23 can be conducted to flow out. The filter mesh 30 is horizontally positioned with the meshes 33 in a vertical state. Therefore, due to gravity, it is uneasy for the impurities contained in the liquid paint to attach to the filter mesh 30. Accordingly, the impurities will drop from the filter mesh 30 and exhausted from the valve body 50. Therefore, the amount of the impurities 34 jamming the filter mesh 30 is reduced so that it is convenient to clear off the impurities 34 to keep the filtering effect.

According to the above arrangement, the present invention has the following advantages:

- 5 1. The period of cleaning of the filter mesh is prolonged and the filtering effect is better: The filter mesh is horizontally positioned so that due to gravity, the impurities jamming the filter mesh tend to drop from the filter mesh onto the bottom of the conic section. In addition, the guiding outlets of the guide member are such directed that the impact of the flowing out liquid paint is buffered. Therefore, the impurities will directly drop into the conic section to durably keep the filter mesh clean. Accordingly, the period of cleaning of the filter mesh is greatly prolonged and the filtering effect is greatly enhanced in comparison with the conventional filter device.
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- 15 2. It is easy to clean the filter mesh: The impurities are precipitated on the bottom of the conic section. When opening the valve body, by means of the cone of the conic section, the impurities can be effectively guided out without any dead corner. In addition, the filter mesh is horizontally positioned so that it is convenient to wash the filter mesh at high efficiency.
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- 25 3. The cost is lowered: The filter mesh is horizontally positioned and is easy to manufacture and transfer. Therefore, the cost is greatly lowered.

The above embodiment is only used to illustrate the present invention, not intended to limit the scope thereof. Many modifications of the above embodiment can be made without departing from the spirit of the present invention.